National Institute of Environmental Health Sciences

DengueTools: Innovative tools and strategies for the surveillance and control of dengue

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Abstract:

Dengue fever is a mosquito-borne viral disease estimated to cause about 230 million infections worldwide every year, of which 25,000 are fatal. Global incidence has risen rapidly in recent decades with some 3.6 billion people, over half of the world's population, now at risk, mainly in urban centres of the tropics and subtropics. Demographic and societal changes, in particular urbanization, globalization, and increased international travel, are major contributors to the rise in incidence and geographic expansion of dengue infections. Major research gaps continue to hamper the control of dengue. The European Commission launched a call under the 7th Framework Programme with the title of 'Comprehensive control of Dengue fever under changing climatic conditions'. Fourteen partners from several countries in Europe, Asia, and South America formed a consortium named 'DengueTools' to respond to the call to achieve better diagnosis, surveillance, prevention, and predictive models and improve our understanding of the spread of dengue to previously uninfected regions (including Europe) in the context of globalization and climate change. The consortium comprises 12 work packages to address a set of research questions in three areas: Research area 1: Develop a comprehensive early warning and surveillance system that has predictive capability for epidemic dengue and benefits from novel tools for laboratory diagnosis and vector monitoring. Research area 2: Develop novel strategies to prevent dengue in children. Research area 3: Understand and predict the risk of global spread of dengue, in particular the risk of introduction and establishment in Europe, within the context of parameters of vectorial capacity, global mobility, and climate change. In this paper, we report on the rationale and specific study objectives of 'DengueTools'. DengueTools is funded under the Health theme of the Seventh Framework Programme of the European Community, Grant Agreement Number: 282589 Dengue Tools.

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Resource Description

Early Warning System:

resource focus on systems used to warn populations of high temperatures, extreme weather, or other elements of climate change to prevent harm to health

A focus of content

Exposure :

weather or climate related pathway by which climate change affects health

Unspecified Exposure

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Impact:

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Vectorborne Disease

Vectorborne Disease: Mosquito-borne Disease

Mosquito-borne Disease: Dengue

Intervention:

strategy to prepare for or reduce the impact of climate change on health

A focus of content

Medical Community Engagement:

resource focus on how the medical community discusses or acts to address health impacts of climate change

A focus of content

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Model/Methodology:

type of model used or methodology development is a focus of resource

Methodology

Resource Type:

format or standard characteristic of resource

Review

Timescale:

time period studied

Time Scale Unspecified